6 Things Most IT Pros Don't Know About SD-WAN

by Levi Ilyes, Network Engineer and SD-WAN Specialist

How SD-WAN Simplifies Your Network Management

As a network engineer specializing in SD-WAN technology, I often get asked, "Is SD-WAN truly worth the hype?" I get it. With all the tech companies out there offering an infinite range of products and services, how do you know which one is worth your limited IT budget, and which one will turn out to be a waste?

With numerous benefits over its predecessor networks and proven capabilities for businesses of all sizes, IT leaders are starting to see why SD-WAN is emerging as the future of networking. The technology is fast moving past its early adopter stages, and according to SDX Central, SD-WAN sales are expected to surpass $4 billion by 2025. But not all businesses are ready to jump on the bandwagon just yet.

If you are not convinced that SD-WAN is the technology that will simplify and optimize your infrastructure, below are 6 lesser-known facts about SD-WAN that will surely change your mind.

Bandwidth Aggregation and ISP Bonding

Many organizations invest in extensive backup connectivity to ensure that their critical cloud-based databases, applications, and collaboration tools are always up and running. But when used merely a few times a year, backup connectivity can quickly start to seem like a waste of company resources. As a result, many organizations approve backup circuits only for their headquarters, leaving you to argue with providers whenever there is a service interruption at a branch office.

Core Characteristics of SD-WAN

- SD-WAN enables you to improve your network performance and simplify the management of your overgrown infrastructure for easy scalability.
- SD-WAN allows you to connect all your heterogeneous circuits across numerous locations into one unified, centrally managed network.
- You can mass-deploy configurations to any number of these end points with just a few clicks, or you can customize your settings for each individual location as needed.
- During ISP disruptions, a seamless failover ensures that your traffic is routed to your backup links without as much as a blip in VoIP calls.
- With its intelligent routing and load balancing capabilities, SD-WAN enables you to prioritize the network traffic most important for your unique organization.
- SD-WAN proactively monitors the health of your network and routes business-essential, bandwidth-intense or sensitive traffic over the most reliable connection at any given time.
- With its end-to-end encryption and built-in next-generation firewall, you can rest assured that your data is safe.

In an SD-WAN network, as long as it is connected and online, every circuit can be used, regardless of the type or the ISP. The bandwidth aggregation and ISP bonding in SD-WAN allow you to make the most of the resources you are paying for. Your secondary connections can serve as backup during service downtime and their bandwidth can be fully utilized when service is steady to give your bandwidth-intense applications the resources they need for peak performance. With backup connections fully utilized at all times, making the case for the investment becomes much easier.

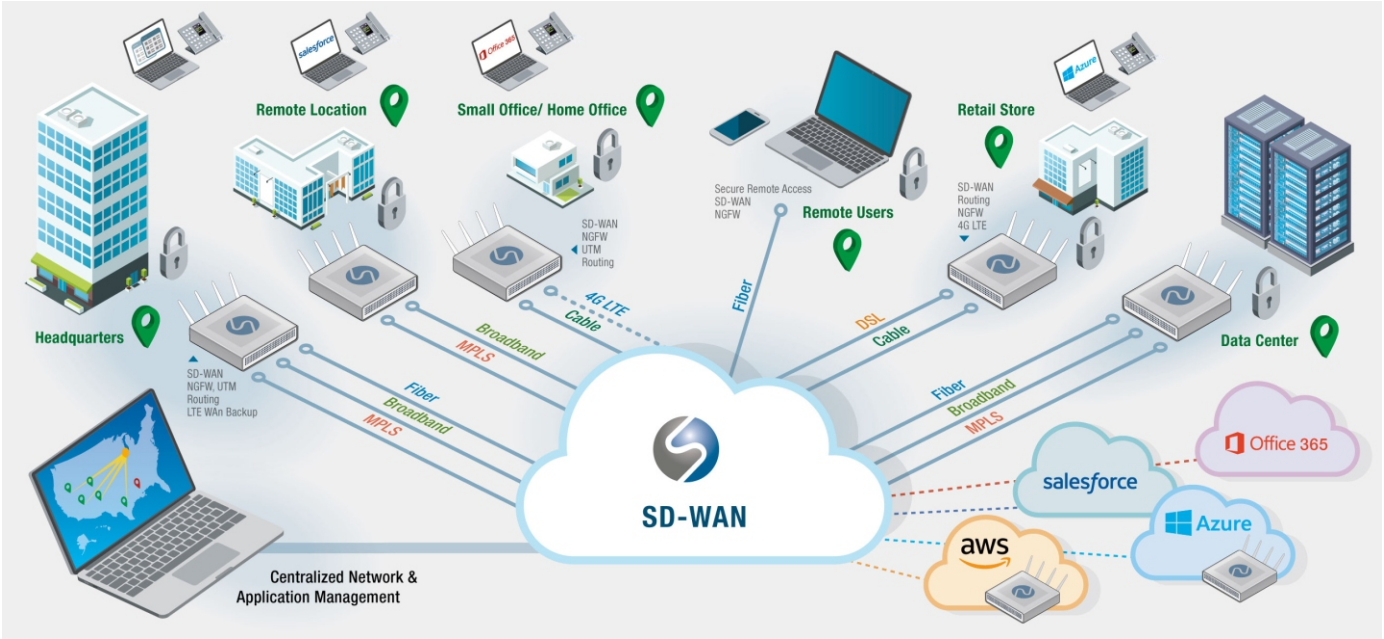
Granular Bandwidth Management

As a system admin, SD-WAN also gives you a wide variety of options for managing available bandwidth on your network. For example, routing policies can be configured to load balance sessions across all or some of the ISPs connected. You can assign certain types of traffic to specific connections, such as sending business critical traffic over expensive, dedicated, low latency lines, while routing less sensitive or important web traffic over affordable broadband lines. You can even ensure that certain metered ISPs, including LTE providers, are utilized for failover purposes only.

In addition, SLA monitors can be configured to continuously measure and evaluate the traffic flowing through each SD-WAN box and the performance of all connected ISP links. SD-WAN can dynamically shift sessions from low performing or failed links to higher performing and available ones based on your configurations. If all your non-metered links fail, your metered LTE links can carry all or just a subset of critical applications while the main ISPs come back online.

Simplified Deployment with Configuration Templates

SD-WAN technology enables you to create configuration templates that include common



settings across your SD-WAN devices, making the deployment of new locations and the scaling of your network a breeze. Settings such as SNMP pollers, custom DHCP options for VoIP or the permission levels of users who access and manage the SD-WAN device can be configured as part of the baseline template and pushed to all boxes in your network with just a few clicks.

SD-WAN also gives you the ability to customize each device, both on the template and on the device level. You can build any number of customizations on top of the base configuration to meet the unique needs of each of your locations. In addition, you can also parameterize key device settings, including interface IP addressing, DHCP Pools, and NAT to give you more flexibility during deployment.

With all the templating capabilities and customizations available in SD-WAN, the deployment of a new branch becomes as simple as choosing the appropriate template, filling in the key parameters, performing some optional customizations and pushing the template to the blank hardware.

No Need for Static WAN IPs

Getting third party ISPs to provide static public IP addresses so the deployed router can be connected to - and managed from - the Internet can be an uphill battle. Some businesses are also reluctant to pay more to get a static IP address assigned if their Internet has been working just fine with DHCP-assigned private IPs.

SD-WAN eliminates the need for static WAN IPs. Many SD-WAN solutions actually function most optimally with DHCP on their WAN ports. That way they can provide the most dynamic form of WAN connectivity to any ISP - or even to a company's managed private network.

If you already have public WAN IPs set up, SD-WAN can still work for you. Along with DHCP-provided private WAN IP addresses, SD-WAN's dynamic failover and ISP bonding capabilities enable it to be configured with a public IP for direct management access, such as SSH and SNMP monitoring. In addition, SD-WAN can provide as many public IPs to end-user devices as needed through a dedicated LAN/DMZ port. These public IPs will have automatic failover across all connected ISPs - not only outbound, but inbound as well.

Easy and Fast Device Replacement

Because SD-WAN devices are all cloud managed from a single, globally accessible portal, their most up-to-date configurations are always stored in the cloud and readily available. If you ever need to replace a device at one of your branch locations, you can simply ship new hardware to the site, connect the new blank box to the Internet and replace the serial number of the old device with the serial number of the new one in the management portal. Once this information is updated, the new SD-WAN device will contact the cloud portal, request and apply the configuration of the old box, and be up and running in no time. You can access the admin interface and make these changes from anywhere and any device. (Yes, this includes using your cell phone from your favorite beach.)

Easy Relocation to Anywhere in the World

SD-WAN providers strive to give both their large and small clients the most flexible solutions, even in cases when a branch needs to be relocated. When moving an office to anywhere in the world, you can simply take the SD-WAN device corresponding to that branch and plug it in at the new location. Once you connect it to the Internet, you will be able to access your LAN-connected

devices just like you did before the move, and you can expect to have the same security and accessibility settings, regardless of the location or the ISPs used.

SD-WAN achieves this flexibility by using the ISPs connected to the box at any given time as an underlay network to redundantly link the device to the SD-WAN provider's nearest cloud data center. The SD-WAN box builds a company- and location-specific overlay network and provides a dynamic IP address to ensure the same connectivity and accessibility, regardless of the underlay network. The LAN side of the SD-WAN box will not be impacted by any of these changes to the WAN connectivity.

For example, this means that if you have a publicly accessible web server configured with a Public IP address provided by the SD-WAN and connected to the LAN or DMZ side of the SD-WAN device, you can easily move the SD-WAN box and the web server to any other location in the world. You can connect them to any ISP and your users will still be able to access that web server the same exact way as they did in the original location. No need to update public IPs or DNS records. Just connect it to any ISP and the web server will be online.

Conclusion

SD-WAN has numerous proven benefits for businesses of all sizes and these 6 traits demonstrate that it has been truly developed with IT professionals and system administrators in mind.

SD-WAN is a flexible, dynamic and versatile technology that allows you to meet your end users' needs without extensive legwork, freeing up your time for projects that have the largest impact on your organization. The simplicity of its management system allows all your new system administrators to learn the feature set quickly and hit the ground running. And with SD-WAN's granular user control, you can ensure that all the settings you spent time refining and optimizing are safe.

With ISP bonding capabilities, granular bandwidth management, advanced configuration templates and dynamic IPs, SD-WAN makes the management of overgrown networks easy and fast.

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